



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
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DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

ARLEEN O'DONNELL
Commissioner

May 29, 2007

Board of Selectmen
Bridgewater Town Hall
66 Central Square, Academy Building
Bridgewater, Massachusetts 02324

RE: BRIDGEWATER
Bridgewater Water Department
PWSID # 4042000
Program: Water Management Act
Permit #9P-4-25-042.01
Action: Permit Amendment
Transmittal #W018695

To the Board of Selectmen for the Town of Bridgewater:

The Department has completed its five-year review of Bridgewater's Water Management Act (WMA) permit in the Taunton River Basin as well as its review of your application to amend your permit to add two new sources, as contained in Transmittal #W018695. Please find attached the following:

- Findings of Fact in Support of the Final Permit Decision.
- Amended Water Management Act Permit #9P-4-25-042.01 for the town of Bridgewater.

Please note that this letter represents formal issuance of the attached document. Please direct any comments you may have on your permit to Jan Drake at (508) 946-2841 (e-mail Janice.Drake@state.ma.us).

Very truly yours,

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

Richard J. Rondeau, Chief
Drinking Water Program
Bureau of Resource Protection

R/JD/cb

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Enclosures

cc: Duane.Levangie@state.ma.us
jacowie@aol.com

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD Service - 1-800-298-2207.

MassDEP on the World Wide Web: <http://www.mass.gov/dep>

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Gary Moran, Regional Director, DEP-SERO

cc: Mr. Joseph Silva, Superintendent
Bridgewater Water Department
Town Hall
66 Central Square
Bridgewater, MA 02324

“This document is important and should be translated immediately”.

Spanish

Este documento es importante y se debe traducir inmediatamente.

Portuguese

Este original é importante e deve ser traduzido imediatamente.

Italian

Questo documento è importante e dovrebbe essere tradotto immediatamente.

Greek

Αυτό το έγγραφο είναι σημαντικό και πρέπει να μεταφραστεί αμέσως.

French

Ce document est important et devrait être traduit immédiatement.

Chinese (traditional)

這個文件重要和應該立刻被翻譯。
这个文件重要和应该立刻被翻译。

Findings of Fact in Support of the Permit Amendment Decision
Water Management Permit 9P-4-25-042.01

The Department of Environmental Protection (“DEP” or “the Department”) hereby issues an amended Water Management Act permit to the Town of Bridgewater to withdraw water from the Taunton River Basin.

The Department makes the following *Findings of Fact* in support of the attached amended Water Withdrawal Permit #9P-4-25-042.01. These findings include the Department’s reasons for amending the permit and for the conditions of approval imposed, as required by M.G.L. c.21G, s. 11 and 310 CMR 36.00, and in accordance with the Water Management Act (M.G.L. 21G).

Amendments to your permit are based on information provided by Bridgewater in its Annual Statistical Reports (ASR’s) for the years 2001-2005, Bridgewater’s responses to the Department’s Order to Complete (OTC) as part of your 5-year review, and your permit amendment application, BRP Form WM-02, Transmittal #W018695. This permit amendment application was submitted on your behalf by Dufresne-Henry, Inc. of Westford, Massachusetts to add new sources to your permit. These new sources, Wells #10 A and #10B, have been added to your permit. No new volume has been added to your permit.

Additional permit modifications have been made to update Bridgewater’s permit to conform to recent WMA policy changes.

Bridgewater’s Water Withdrawal History

The Town is registered to withdraw an annual daily average of 1.66 million gallons per day (MGD) from 7 registered groundwater sources in the Taunton River Basin.

Bridgewater’s previous permit, dated May 7, 1996, included 6 of Bridgewater’s 7 registered sources and two permitted sources. With this amendment adding Wells #10 A and #10B to its permit, Bridgewater is now permitted to withdraw the previously allocated permit volume of 0.74 MGD from 10 groundwater sources in the Taunton River Basin until expiration of this permit on March 1, 2010. To maintain compliance with the Water Management Act, Bridgewater will be required to apply for a new permit prior to that date.

Please also note that all registrations will expire on January 1, 2008 unless an application to renew is received by the Department prior to that date. The Department will be providing additional information on applying for renewal of registered volumes to all registrants over the coming months of 2007.

Bridgewater is currently authorized to withdraw a combined registered and permitted volume of 2.40 MGD. However, in recent years, Bridgewater has withdrawn significantly less than their total authorized volume, as summarized, below.

<u>Year</u>	<u>MGD</u>
2001	1.72
2002	1.76
2003	1.67
2004	1.70
2005	1.74

All of Bridgewater’s sources have Zone II delineations, each with an approved rate. These approved rates range from 0.10 MGD for Bridgewater’s registered Well #1 to the combined rate of 1.62 MGD for the 4 registered and permitted High Street wells. These rates are reflected in the Town’s WMA permit for all 10

of Bridgewater's permitted sources as maximum average daily rates. These rates may not be exceeded without prior written approval from the Department.

The following table identifies each of Bridgewater's registered and/or permitted sources and their corresponding Zone II /maximum daily rate.

Well Name/DEP Source ID #		Registration #42504201	Permit # 9P-4-25-042.01	Maximum Daily Rate in millions of gallons/day (MGD)
Well #3	4042000-02G	X	X	<i>Combined High Street wells – not to exceed 1.62 MGD on an average daily basis</i>
Well #6	4042000-05G	X	X	
Well #8	4042000-09G	-	X	
Well #9	4042000-10G	-	X	
Well #2	4042000-04G	X	X	0.58 MGD
Well #4	4042000-06G	X	X	0.43 MGD
Well #5	4042000-07G	X	X	0.24 MGD
Well #7	4042000-08G	X	X	0.14 MGD
Well #10A	4042000-11G	-	X	0.23 MGD
Well #10B	4042000-12G	-	X	0.31 MGD
Well #1	4042000-03G	X	-	0.10 MGD

The Water Management Act

The Act requires that the Department issue permits that strike a balance between a variety of factors including:

- Reasonable protection of existing water uses, land values, investments and enterprises;
- Reasonable conservation consistent with efficient water use;
- Reasonable protection of public drinking water supplies, water quality, wastewater treatment capacity, waste assimilation capacity, groundwater recharge areas, navigation, hydropower resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, flood plains; and
- Reasonable economic development and job creation.

The Department has determined that there is documented evidence that water withdrawals and an increase in development and impervious area, combined with the out-of-basin export of wastewater, substantially contribute to low flow in the Commonwealth. These low flows impact the ability of rivers and tributaries to adequately serve all of the competing uses described in the Act.

To better achieve the balance of competing water uses mandated by the Act, the Department has adopted the "Water Management Policy For Permit and Permit Amendment Applications and 5-Year Review, Effective Date: April 2, 2004" and the "Guidance Document for Water Management Act Permitting Policy, Effective Date: January 17, 2006". The Policy, WMA Policy #: BRP/ DWM/DW/P04-1, and Guidance, Guidance #BRP/DWM/DW/G05-01, can be found on the Department's web site at <http://www.mass.gov/dep/water/laws/policies.htm#wmgt> under "Water Management Policies". The Policy and Guidance identify specific performance standards and conditions to be applied to new Water Management permits and to existing permits at the time they are amended, during 5-year permit review or permit renewal. The Department has applied these performance standards and conditions in Bridgewater's permit.

Finding of Fact for the Performance Standards in Bridgewater's Water Management Permit

As required by MGL c 21G, s 11 and 310 CMR 36.00, the Department makes the following Findings of Fact in support of the Permit, and includes herewith its reasons for approving the Permit and for imposing the conditions of approval.

In determining the performance standards in Water Management permits, the Department relies primarily upon the stressed basin determinations contained in the Water Resources Commission's (WRC) Stressed Basins Report approved December 13, 2001, and upon future revisions to these stressed basin determinations by the WRC. The Department also conducts reviews of other available research and reports by the United States Geological Survey, the Department's Watershed Water Quality Assessment Reports and any other pertinent reports available for specific river basins.

Bridgewater's sources are located in the Taunton River Basin, which is identified as a medium stress basin by the WRC's Stressed Basins Report. The map of stressed basins can be reviewed at the following link: <http://www.mass.gov/dep/water/laws/policies.htm#wmgt> under "Water Management Policies", Flow Stress Map. The Policy and Guidance establish the following performance standards for all permittees that withdraw water from medium stressed river basins:

1. Residential gallons per capita day water use (RGPCD) of 65 gallons or less;
2. Unaccounted for water (UAW) of 10% or less;
3. Summer Limits on Withdrawals implemented through either a calendar trigger or a streamflow trigger; and
4. Offset Feasibility Studies for permittees that exceed the baseline withdrawal volume (Baseline) established for each permittee.

The performance standards of 65 gallons per day or less for residential per capita water use and 10% or less for unaccounted for water are taken from the WRC performance standards for effective water conservation for public water suppliers. The Department believes these standards are reasonable based on studies and data developed throughout the country, the 1996 AWWA Leak Detection and Water Accountability Committee report on water accountability (AWWA Journal; July 1996; pp. 108-111), and the fact that the average values in 2005 for Massachusetts were 71 RGPCD, and 11% UAW. While these performance standards represent the minimum standards required for compliance with the Permit, the Department believes that they are reasonable standards for effective water conservation and that through the implementation of all the terms and conditions of Water Management permits, permittees can exceed the performance standards for RGPCD and UAW.

Baseline withdrawal is the volume withdrawn in compliance with the Act during the calendar year 2005, the average volume withdrawn in compliance with the Act from 2003 to 2005, or the registered volume, whichever is highest.

Bridgewater's baseline is 1.74 MGD, the withdrawal volume reported on the Annual Statistical Report (ASR) for 2005.

The Guidance, as revised on January 17, 2006, provides implementation and enforcement guidelines for permitting. It establishes:

- timelines for compliance with the performance standards;
- procedures and requirements for permittees that fail to document compliance with the performance standards within those timelines;

- enforcement margins and enforcement forbearance that the Department will employ for permittees in high and medium stress basins.

For more information on enforcement margins and forbearance, see the Guidance Document for Water Management Act Permitting Policy, Section II, paragraph 3, and Section III, paragraph 3 (<http://www.mass.gov/dep/water/laws/policies.htm#wmgt>).

Finding of Fact for Special Permit Conditions

In issuing permits, the Department looks primarily at site-specific impacts and other issues specific to the system, such as impacts to nearby streams, wetlands, or other water users, justification of long-term demand projections and the capacity of permitted withdrawal points. The permit's "special conditions" are intended to ensure the efficient use of water and to mitigate the potential impact of withdrawals.

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume, reflects the registered withdrawal volume of 1.66 MGD and a permitted increase to 0.74 MGD for a total authorized withdrawal of 2.40 MGD through March 1, 2010.

The 2.40 MGD authorized withdrawal volume represents the volume originally allocated for Period 4 of Bridgewater's permit based on demand projections developed by the Department of Environmental Management (formerly "DEM", now the Department of Conservation and Recreation-"DCR") in 1991. While Bridgewater has used little more than 71% of its total allocated volumes, Bridgewater has provided documentation showing potential projects in town that could increase actual demand to the allocated volume. For that reason the Department chose not to reduce or hold the permitted volume but to instead maintain the previously allocated volume for Period 4. This volume will be reevaluated in 2010 at the time of your permit expiration. The Department considers Bridgewater's 1.74 MGD water use for the year 2005 as Bridgewater's "baseline" withdrawal volume. Note that water use above the 1.74 MGD baseline will require offsets if feasible.

Special Condition 2, Maximum Authorized Daily Withdrawals from each Withdrawal Point, reflect the maximum daily withdrawal rates by source, according to the Department-approved Zone II rates. Wells #10A and #10B have been added to this permit condition.

Special Condition 3, Zone II Delineations, This requirement has been met and no further delineations are required as a condition of this permit.

Special Condition 4, Water Supply Source Protection, Bridgewater is in compliance with the requirements of 310 CMR 22.21

Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water Use, discussed previously. In its 2005 ASR, Bridgewater reported 56 residential gallons per capita per day, which is under the Department's standard of 65 rgpcd.

Special Condition 6, Performance Standard for Unaccounted for Water, discussed previously. As reported in the 2005 Annual Statistical Report, Bridgewater's unaccounted-for-water was 6.6 %, well under the Department's standard of 10%.

Special Condition 7, Summer Water Use Restrictions, addresses limits on outside water use by those in Bridgewater served by the Town water system from May through September. Bridgewater shall choose either calendar-triggered outdoor water restrictions between May 1st and September 30th each year or streamflow-triggered water restrictions that must be enforced whenever gauged mean daily streamflow

falls below 0.50 cubic feet per second per square mile for 3 or more days. Bridgewater may also choose to continue to implement outdoor water use restrictions that are more stringent than those required in the permit.

Special Condition 8, Water Withdrawals that Exceed Baseline Withdrawal Volumes, discussed previously.

Special Condition 9, Water Conservation Requirements, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts as approved and issued by the Water Resources Commission in July 2006.

Special Condition 10, Requirement to Report Raw and Finished Water Volumes, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

The preceding summary of permit conditions within the Department's findings of fact is not intended to, and should not be construed as, modifying any of the Permit conditions. In the event of any ambiguity between the summary and the actual permit conditions, the Permit language shall be controlling.



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This permit is issued pursuant to the Massachusetts Water Management Act (the Act) for the sole purpose of authorizing the withdrawal of a volume of water as stated herein and subject to the following special and general conditions. This permit conveys no right in or to any property beyond the right to withdraw the volume of water for which it is issued.

PERMIT NUMBER: 9P-4-25-042.01

BASIN: Taunton River

PERMITTEE: Town of Bridgewater Board of Selectmen
Bridgewater Town Hall, 66 Central Square, Academy Building
Bridgewater, Massachusetts 02324

ISSUANCE DATE: June 1, 1991

AMENDMENT DATE: May 29, 2007

EXPIRATION DATE: March 1, 2010

NUMBER OF WITHDRAWAL POINTS: 10

Groundwater: 10 Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD Service - 1-800-298-2207.

MassDEP on the World Wide Web: <http://www.mass.gov/dep>

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LOCATION(S):

Table 1: Withdrawal Point Identification

Well #3	4042000-02G
Well #6	4042000-05G
Well #8	4042000-09G
Well #9	4042000-10G
Well #2	4042000-04G
Well #4	4042000-06G
Well #5	4042000-07G
Well #7	4042000-08G
Well #10 A	4042000-11G
Well #10 B	4042000-12G

SPECIAL PERMIT CONDITIONS:

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Town of Bridgewater to withdraw water from the Taunton River Basin at the rate described below. (Table 2). The volume reflected by this rate is in addition to the 1.66 million gallons per day (MGD) previously authorized to Bridgewater under Water Management Act Registration #425042.01 for withdrawal from the Taunton River Basin. The permitted volume is expressed both as an annual average daily withdrawal rate (MGD), and as a total annual withdrawal volume (million gallons per year or mgy) for each five-year period of the permit term.

The Department of Environmental Protection (the Department) bases these withdrawal volumes on the raw water withdrawn from the authorized withdrawal points, and will use the raw water amount to assess compliance with the registered and permitted withdrawal volumes.

Table 2: Maximum Authorized Withdrawal Volumes

5-Year Periods		Total Raw Water Withdrawal Volumes			
		Permit		Permit + Registration	
		Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
Period One Years 1-5	6/1/1991 to 2/29/1995	0.25	91.25	1.91	697.15
Period Two Years 6-10	3/1/1995 to 2/29/2000	0.40	146.00	2.06	751.90
Period Three Years 11-15	3/1/2000 to 2/28/2005	0.57	208.05	2.23	813.95
Period Four Years 16-20	3/1/2005 to 3/1/2010	0.74	270.10	2.40*	876.00*

* Volumes noted are in effect only if no change to registered volume occurs at the January 1, 2008 registration renewal date. Bridgewater's baseline withdrawal for the purpose of

triggering “Special Condition 8, Water Withdrawals that Exceed Baseline Withdrawal Volumes” is **1.74 MGD, or 635.10 MGY**.

2. Maximum Authorized Daily Withdrawals from each Withdrawal Point

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volumes listed below without specific advance written approval from the Department. The authorized maximum daily volume is the approved rate of each source. In no event shall the combined withdrawals from the individual withdrawal points exceed the withdrawal volumes authorized above in Special Condition 1.

Table 3: Maximum Daily Withdrawal Volumes		
Well Name	Source ID Code	Maximum Daily Rate (MGD)
Well #3	4042000-02G	*
Well #6	4042000-05G	
Well #8	4042000-09G	
Well #9	4042000-10G	
Well #2	40 42000-04G	0.58
Well #4	4042000-06G	0.43
Well #5	4042000-07G	0.24
Well #7	4042000-08G	0.14
Well #10 A	4042000-11G	0.23
Well #10 B	4042000-12G	0.31

** High Street Wells (Wells #3, #6, #8, and #9) combined cannot exceed 1.62 MGD*

3. Zone II Delineations

Department records show that all of Bridgewater’s authorized sources have approved Zone II delineations. No further Zone II work is required as a condition of this permit.

4. Water Supply Wellhead Protection

Bridgewater is currently in compliance with the requirements of the Department’s Wellhead Protection Regulations, 310 CMR 22.21(2).

5. Performance Standard for Residential Gallons Per Capita Day Water Use

Bridgewater’s performance standard for residential gallons per capita day (RGPCD) is 65 gallons. Bridgewater shall be in compliance with the performance standard by December 31, 2009. Bridgewater shall report its RGPCD water use annually in its Annual Statistical Report (ASR) and document compliance with this performance standard in its ASR for 2009 and each year thereafter.

Bridgewater shall report its RGPCD and the calculation used to derive that figure as part of its ASR including, without limitation, the source of the data used to establish the service population and the year in which this data was developed.

See Appendix A for additional information on the requirements if the performance standard for RGPCD is not met.

6. Performance Standard for Unaccounted for Water

Bridgewater's performance standard for unaccounted for water (UAW) is 10% of overall water withdrawal. Bridgewater shall be in compliance with the performance standard by December 31, 2009. Bridgewater shall report its UAW annually in its Annual Statistical Report (ASR) and document compliance with this performance standard in its ASR for 2009 and each year thereafter. Bridgewater shall report its UAW and the calculation used to derive that figure as part of its ASR.

See Appendix B for additional information on requirements if the performance standard for UAW is not met.

7. Summer Limits on Withdrawals

Bridgewater shall limit summer water withdrawals by implementing restrictions at least as stringent as one of the following two options (Option 1: Calendar Trigger or Option 2: Streamflow Trigger). **Nothing in this permit shall prevent Bridgewater from implementing water use restrictions stricter than those set forth in Options 1 and 2.**

Table 4: Summer Limits on Withdrawals	
<u>Option 1: Calendar Trigger</u>	<u>Option 2: Stream Flow Trigger</u>
<p>At a minimum, implement the following restrictions on nonessential outdoor water use between May 1st and September 30th.</p> <ul style="list-style-type: none">• No nonessential outdoor water use allowed, except that sprinklers may be used for lawn watering outside the hours of 9 AM to 5 PM up to 2 days per week.• Upon the declaration of a drought level of "Watch" (or higher drought designation) by the Massachusetts Drought Management Task Force for the region in which Bridgewater's withdrawal sources are located*, the restrictions set forth in Option 2 must be implemented and remain in place until the drought level is returned to "Advisory" or "Normal".	<p>At a minimum, implement the following restrictions on nonessential outdoor water use whenever stream flow falls below a mean daily streamflow of 0.50 cubic feet per second per square mile (cfsm) for three (3) consecutive days between May 1st and September 30th. Stream flow shall be measured at the USGS Taunton River Gauge Station at Location #01108000 (Taunton River Gauge)**. At the Taunton River Gauge, 0.50 cfsm is equal to 130.5 cubic feet per second (cfs).</p> <ul style="list-style-type: none">• Nonessential outdoor water is banned, except that sprinklers may be used for lawn watering outside the hours of 9 AM to 5 PM one day per week.• Once implemented, the restrictions shall remain in place until streamflow at the Taunton River Gauge meets or exceeds 0.50 cfsm (130.5 cfs) for 7 consecutive days.

*This information is available at <http://www.mass.gov/dcr/waterSupply/rainfall/drought.htm>.

**Gauge readings can be accessed at <http://waterdata.usgs.gov/ma/nwis/current/?type=flow>. See Appendix C for more detailed instructions on accessing mean daily streamflows for the Taunton River Gauge.

As used herein, “nonessential outdoor water use” includes uses that are not required:

- (a) for health or safety reasons;
- (b) by regulation;
- (c) for the production of food and fiber;
- (d) for the maintenance of livestock; or
- (e) to meet the core functions of a business.

For additional guidance on nonessential outdoor water use, see Appendix C.

Bridgewater shall choose either Option 1 or Option 2 above, and implement and enforce the required restrictions starting no later than May 1, 2008. Bridgewater shall document its compliance with the summer limits on withdrawal requirements annually in its ASR for 2008, and each year thereafter.

Option 1: Calendar Trigger

If Bridgewater chooses Option 1: Calendar Trigger, then Bridgewater shall notify its customers each year by April 15th of the restrictions and the consequences for failing to adhere to the restrictions.

Notice must include:

- The need to limit water use, especially nonessential outdoor water use, to protect streamflow for aquatic life and to ensure a sustainable drinking water supply;
- Ways individual homeowners can limit water use, especially nonessential outdoor water use;
- A detailed description of the restrictions and penalties for violating the restrictions.

Notice that restrictions have been put in place shall be filed each year with the Department within 14 days of the restriction’s effective date. Filing shall be in writing on the Water Use Restrictions Form at <http://www.mass.gov/dep/water/approvals/wmgforms.htm#conserve>.

Option 2: Stream Flow Trigger

If Bridgewater chooses Option 2: Stream Flow Trigger, when streamflow falls below 0.50 cfs (130.5 cfs at the Taunton River Gauge) for 3 consecutive days, Bridgewater shall notify its customers as soon as possible, and in any event no more than 3 days after implementation, of the restrictions and the consequences for failing to adhere to the restrictions. Notice must include:

- The streamflow value triggering the required notification;
- The need to limit water use, especially nonessential outdoor water use, to protect streamflow for aquatic life and to ensure a sustainable drinking water supply;
- Ways individual homeowners can limit water use, especially nonessential outdoor water use;
- A detailed description of the restrictions and penalties for violating the restrictions.

Notice that restrictions have been put in place shall be filed with the Department within 14 days of the restriction’s effective date. Filing shall be in writing on the Water Use Restrictions Form at <http://www.mass.gov/dep/water/approvals/wmgforms.htm#conserve>.

Notice to customers and the Department need not be provided if Bridgewater has already implemented water use restrictions that conform to the applicable restrictions and those restrictions are still in force.

Should the reliability of flow measurement at the Taunton River Gauge be so impaired as to question its accuracy, Bridgewater may request the Department's review and approval for the trigger mechanism to be transferred to another gauge. The Department reserves the right to require use of a different gauge.

8. Water Withdrawals that Exceed Baseline Withdrawal Volumes

Bridgewater's baseline withdrawal volume is 1.74 MGD, the withdrawal volume reported on the Annual Statistical Report (ASR) for 2005.

Bridgewater shall make a written evaluation of the cost and benefits of adopting and implementing each of the following Best Management Practices (BMPs) in an Offset Feasibility Study (Study) the first time water withdrawals for a calendar year exceeds the Baseline, beginning with calendar year 2009.

BMP's to be evaluated:

- Low Impact Development, Conservation Development and Smart Growth bylaw or regulations. Land clearing/development bylaws (loam, native vegetation site clearing limitation, lawn size limitations).

Water Bank

- Traditional water and/or sewer bank
- Institute "hook-up" fee for all new development with revenues to be dedicated to water conservation programs such as rebate programs for homeowners (efficient appliances)

Outdoor Water Use Controls

- Private well regulations to ensure outdoor water use restriction apply to all
- Bylaw prohibiting or restricting in-ground irrigations systems
- Rebate for rainwater recovery systems or rainwater cisterns at cost

Stormwater Management and Recharge

- Stormwater Utility or dedicated stormwater fees used to build and maintain stormwater infiltration facilities
- By-law implementing MA stormwater recharge standards townwide beyond the wetland areas required in the MA Stormwater Policy
- By-law requiring stormwater recharge above the rates required in the MA Stormwater Policy

Infiltration and Inflow

- Enhanced I/I program

If Bridgewater is required to perform a Study, Bridgewater shall:

- Within 60 days of the filing of an ASR indicating that a Study is required, submit a Study Scope of Work to the Department for approval;
- Within 6 months of the Department's approval of the Study Scope of Work, submit the completed Study to the Department for approval;
- The Department's approval of the Study Scope of Work and the completed Study will be presumed if the Department does not issue a written approval or denial of such submission within 60 days of the date submitted to the Department for approval.

If Bridgewater files a subsequent ASR indicating that withdrawals for a calendar year again have exceeded its Baseline, then Bridgewater shall:

- Implement the results of the Study;
- Document such implementation annually at the time it files its ASR; and
- Continue to implement the results of the Study as long as withdrawals exceed Baseline.

9. Water Conservation Requirements

At a minimum, Bridgewater shall implement the following conservation measures forthwith and shall be in compliance with these measures on or before March 1, 2010. The Department recognizes that Bridgewater is currently implementing a number of these requirements. Compliance with the water conservation requirements shall be reported to the Department upon request or by March 1, 2010, the date of the next Review/Renewal of the permit, unless otherwise noted below.

Table 5: Minimum Water Conservation Requirements
System Water Audits and Leak Detection
<ul style="list-style-type: none"> • At a minimum, conduct a full leak detection survey every three years. The first full leak detection survey shall be completed no later than 3 yrs from the date of last documented leak detection survey.
<ul style="list-style-type: none"> • Perform a leak detection survey of the entire distribution system within one year whenever the percentage of unaccounted for water increases by 5% or more (for example an increase from 3% to 8%) over the percentage reported on the ASR for the prior calendar year. Within 60 days of completing the leak detection survey. The permit holder shall submit to the Department for its review a report detailing the leak detection survey, any leaks uncovered as a result of the survey or otherwise, dates of repair and the estimated water savings as a result of the repairs.
<ul style="list-style-type: none"> • Conduct field surveys for leaks and repair programs in accordance with the <u>AWWA Manual 36</u>.
<ul style="list-style-type: none"> • Repair reports shall be kept available for inspection by the Department. The permit holder shall establish a schedule for repairing leaks that is at least as stringent as the following: <ul style="list-style-type: none"> ○ Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection. ○ Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible. ○ Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway. <p>Leaks shall be repaired in accordance with the permit holder's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. The Town shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.</p>
Metering
<ul style="list-style-type: none"> • Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
<ul style="list-style-type: none"> • 100% metering of the system is required. All water distribution system users shall have properly sized service lines and meters that meet AWWA calibration and accuracy performance standards as set forth in <u>AWWA Manual M6 – Water Meters</u>, by the permit renewal date.
<ul style="list-style-type: none"> • An ongoing program to inspect individual service meters shall be maintained to ensure

Table 5: Minimum Water Conservation Requirements	
	that all service meters accurately measure the volume of water used by customers. The metering program shall include regular meter maintenance, including testing, calibration, repair, replacement and checks for tampering to identify and correct illegal connections. The plan shall continue to include placement of sufficient funds in the system's annual water budget to calibrate, repair, or replace meters as necessary.
Pricing	
	<ul style="list-style-type: none"> Establish a water pricing structure that includes the full cost of operating the water supply system by the next permit renewal date. Evaluate rates every three to five years and adjust costs as needed. Full cost pricing factors all costs - operations, maintenance, capital, and indirect costs (environmental impacts, watershed protection) - into prices.
	<ul style="list-style-type: none"> Decreasing block rates which charge lower prices as water use increases during the billing period, are not allowed by M.G.L. Chapter 40 Section 39L.
Residential and Public Sector Conservation	
	<ul style="list-style-type: none"> All standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code, shall be met.
	<ul style="list-style-type: none"> Meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.
Municipal buildings:	
	<ul style="list-style-type: none"> By January 1, 2008, submit to the Department a status report detailing which municipally owned public buildings in the permit holder's service area have been retrofitted with water saving devices (faucet aerators, low flow shower heads and low flow toilets) and which of those buildings have yet to be retrofitted, along with a schedule to complete the retrofitting by January 1, 2012.
	<ul style="list-style-type: none"> On or before January 1, 2012, ensure that all municipally owned public buildings in the service area are retrofitted. Note: Municipally owned public buildings that may be scheduled for rehab or demolition after the January 1, 2012 deadline for completing the retrofits, may, with the Department's approval, be exempted from this condition based on the schedule of work. Status report required above should identify those buildings and schedule for repairs/demolition.
Industrial and Commercial Water Conservation	
	<ul style="list-style-type: none"> Review the use records for industrial, commercial and institutional water users, develop an inventory of the largest water users. and develop and implement an outreach program designed to inform and (where appropriate) work with its largest industrial, commercial and institutional water users on ways to reduce their water use by the next <i>permit</i> review or renewal date. Such outreach plans can include, but are not limited to: information on water audits, meter sizing, water reuse, low-flow plumbing fixtures, mandatory outdoor water use restrictions, suggestions for contacting trade associations for process-specific information on water use reductions, and information on contacting the Executive Office of Environmental Affairs Office of Technical Assistance for Toxics Use Reduction (OTA) which offers a range of assistance and information to help facilities improve water use efficiency and reduce wastewater discharge. OTA can be contacted at (617) 626-1060 or at www.mass.gov/envir/ota.
	<ul style="list-style-type: none"> Upon request by the Department, the permit holder shall report on industrial, commercial and institutional water conservation including the results of its review of water use records for industrial, commercial and institutional water users, the inventory of the largest water users, copies of any outreach materials distributed to industrial, commercial and institutional water users, and to the extent practical, a summary of water use

Table 5: Minimum Water Conservation Requirements	
reductions or savings that have resulted. Upon receipt of this report, the Department will take whatever action it deems appropriate to promote the interests of the Water Management Act, including requiring additional actions of the permit holder to reduce industrial, commercial and institutional water use.	
Public Education and Outreach	
<ol style="list-style-type: none"> 1. Develop and implement a Water Conservation Education Plan designed to educate water customers of ways to conserve water. The plan may include the following actions: <ol style="list-style-type: none"> a. Include in bill stuffers and/or bills, a work sheet to enable customers to track water use and conservation efforts and estimate the dollar savings; b. Public space advertising/media stories on successes (and failures); c. Conservation information centers perhaps run jointly with electric or gas company; d. Speakers for community organizations; e. Public service announcements; radio/T.V./audio-visual presentations; f. Joint advertising with hardware stores to promote conservation devices; g. Use of civic and professional organization resources; h. Special events such as Conservation Fairs; i. Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and make multilingual materials available as needed. 	
<ul style="list-style-type: none"> • Upon request of the Department, report on public education and outreach effort, including a summary of activities developed for specific target audiences, any events or activities sponsored to promote water conservation and copies of written materials. 	

10. Requirement to Report Raw and Finished Water Volumes

Bridgewater shall report annually on its ASR the raw water volumes **and** finished water volumes for the entire water system and the raw water volumes for individual water withdrawal points.

GENERAL PERMIT CONDITIONS (applicable to all permittees)

No withdrawal in excess of 100,000 gallons per day over the registered volume (if any) shall be made following the expiration of this permit, unless before that date the Department has received a renewal permit application pursuant to 310 CMR 36.00.

1. Duty to Comply Bridgewater shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
2. Operation and Maintenance Bridgewater shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw water so as not to impair the purposes and interests of the Act.
3. Entry and Inspections Bridgewater or the Bridgewater's agent shall allow personnel or authorized agents or employees of the Department to enter and examine any property for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.

4. Water Emergency Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by the Department pursuant to MGL c 21G ss 15-17, MGL c 150 ss 111, or any other enabling authority.
5. Transfer of Permits This permit shall not be transferred in whole or in part unless and until the Department approves such transfer in writing, pursuant to a transfer application on forms provided by the Department requesting such approval and received by the Department at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.
6. Duty to Report Bridgewater shall complete and submit annually, on a form provided by the Department, all of the information required by said form including, without limitation, a certified statement of the withdrawal. Such report shall be received by the Department by the date specified on the form each year. Such report must be mailed or hand delivered to:

Department of Environmental Protection
Drinking Water Program
One Winter Street, 5th Floor
Boston, MA 02108

7. Duty to Maintain Records Bridgewater shall maintain withdrawal records and other information in sufficient detail to demonstrate compliance with this permit.
8. Metering All withdrawal points included within the permit shall be metered within one year of the date of issuance of the permit. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.

APPEAL RIGHTS AND TIME LIMITS

This permit is a decision of the Department. Any person aggrieved by this decision may request an adjudicatory hearing under the provisions of MGL c 30A. Any such request must be made in writing, by certified mail and received by the Department within twenty-one (21) days of the date of receipt of this permit. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail or delivered by hand to the local water resources management official in the city or town in which the withdrawal point(s) is located; and for any person appealing this decision, who is not the applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

CONTENTS OF HEARING REQUEST

310 CMR 1.01(6)(b) requires the request to include a clear and concise statement of the facts which are the grounds for the request and the relief sought. In addition, the request must include a statement of the reasons why the decision of the Department is not consistent with applicable rules and regulations, and for any person appealing this decision who is not the applicant, a clear and concise statement of how that person is aggrieved by the issuance of this permit.

FILING FEE AND ADDRESS

The hearing request, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of \$100 must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

EXEMPTIONS

The filing fee is not required if the appellant is a city or town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

WAIVER

The Department may waive the adjudicatory hearing filing fee for any person who demonstrates to the satisfaction of the Department that the fee will create an undue financial hardship. A person, seeking a waiver must file, together with the hearing request, an affidavit setting forth the facts, which support the claim of undue hardship.

Appendix A – Residential Gallons Per Capita Day

I. Compliance Plan Requirement

If Bridgewater fails to document compliance with the RGPCD performance standard in its 2009 ASR, or in any ASR thereafter, then Bridgewater must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall:

- a. meet the requirement set forth below in Section II;
- b. include measures to be implemented to meet the performance standard; and
- c. include the schedule for implementing such measures.

The filing of a RGPCD Plan shall not constitute a return to compliance, nor shall it affect the Department's authority to take action in response to Bridgewater's failure to meet the performance standard.

If a RGPCD Plan is required, Bridgewater must:

- a. submit information and supporting documentation sufficient to demonstrate compliance with its RGPCD Plan annually at the time it files its ASR; and
- b. continue to implement the RGPCD Plan until it complies with the performance standard and such compliance is documented in Bridgewater's ASR for the calendar year in which the standard is met.

II. Contents of a Residential Gallons Per Capita Day Compliance Plan

At a minimum, all RGPCD Compliance Plans must include a detailed:

- a. description of the actions taken during the prior calendar year to meet the performance standard;
- b. analysis of the cause of the failure to meet the performance standard;
- c. description and schedule of the actions that will be taken to meet the performance standard; and
- d. analysis of how the actions described in c. will address the specific circumstances that resulted in the failure to meet the performance standard.

RGPCD Plans may be amended to revise the actions that will be taken to meet the performance standard. Amended RGPCD Plans must include the information set forth in paragraph above.

At a minimum, all RGPCD Plans for failure to meet the RGPCD performance standard must include implementation of at least one of the following residential conservation programs:

- a. a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
- b. a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets); or
- c. the adoption and enforcement of an ordinance, bylaw or regulation to require the installation of moisture sensors or similar climate related control technology on all automatic irrigation systems.

If Bridgewater is already implementing one or more of these programs, it must include in its RGPCD Plan the continued implementation of such program(s), as well as implementation of at least one additional program. All programs must include a public information component designed to inform customers of the program and to encourage participation in the program.

Without limitation, RGPCD Plans for failure to meet the RGPCD performance standard may include the following actions in addition to those outlined in the paragraph above:

- a. the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
- b. a program that provides rebates or other incentives for the installation of moisture sensors or similar climate related control technology on automatic irrigation systems;
- c. the adoption and enforcement of an ordinance, bylaw or regulation to require that all new construction include water saving devices and low water use appliances;
- d. the adoption and enforcement of an ordinance, bylaw or regulation to require that all new construction minimize lawn area and/or irrigated lawn area, maximize the use of drought resistant landscaping, and maximize the use of top soil with a high water retention rate;
- e. the implementation of a program to encourage the use of cisterns or rain barrels for outside watering; and
- f. the implementation of monthly or quarterly billing.

Appendix B – Unaccounted for Water

UAW is defined as the residual resulting from the total amount of water supplied to a distribution system as measured by master meters, minus the sum of all amounts of water measured by consumption meters in the distribution systems, and minus confidently estimated and documented amounts used for certain necessary purposes.

Examples of UAW include, but are not limited to: leakage, meter inaccuracies (unless they fall under the category of adjustment per results of source meter calibration described in the ASR), errors in estimation of stopped meters, unauthorized hydrant openings, illegal connections, data processing errors, and undocumented fire fighting uses.

Examples of uses that can be confidently estimated and documented in writing include storage tank overflow and drainage; water main flushing and flow testing; fire fighting; bleeding or blow-offs; sewer and stormwater system flushing; and cleaning and street cleaning. Generally, leakage is considered to be UAW, however, individual water main breaks can be discounted on a case-by-case basis. Any adjustment in the calculation of UAW made as a result of confidently estimated uses shall be documented as required in the ASR.

I. Compliance Plan Requirement

If Bridgewater fails to document compliance with the UAW performance standard in its 2009 ASR, or in any ASR thereafter, then Bridgewater must file with that ASR an Unaccounted for Water Compliance Plan (UAW Plan) which shall:

- a. meet the requirements set forth below in Section II;
- b. include measures to be implemented to meet the performance standard; and
- c. include the schedule for implementing such measures.

The filing of a UAW Plan shall not constitute a return to compliance, nor shall it affect the Department's authority to take action in response to Bridgewater's failure to meet the performance standard.

If a UAW Plan is required, Bridgewater must:

- a. submit information and supporting documentation sufficient to demonstrate compliance with its UAW Plan annually at the time it files its ASR; and
- b. continue to implement the UAW Plan until it complies with the performance standard and such compliance is documented in Bridgewater's ASR for the calendar year in which the standard is met.

II. Contents of an Unaccounted for Water Compliance Plan

Bridgewater has the choice to file a UAW Plan with measures tailored to the specific needs of its water supply system (Individualized UAW Plan) or a UAW Plan that includes Best Management Practices (BMP UAW Plan).

At a minimum, all UAW Plans must include a detailed:

- a. description of the actions taken during the prior calendar year to meet the applicable performance standard;
- b. analysis of the cause of the failure to meet the performance standard;
- c. description and schedule of the actions that will be taken to meet the performance standard; and

- d. analysis of how the actions described in c. will address the specific circumstances that resulted in the failure to meet the performance standard.

UAW Plans may be amended to revise the actions that will be taken to meet the performance standard. Amended UAW Plans must include the information set forth in the paragraph above.

Individualized UAW Compliance Plan

Without limitation, Individualized UAW Compliance Plans for failure to meet the UAW performance standard may include any of the actions set forth in the BMP UAW Compliance Plan below.

BMP UAW Compliance Plan

At a minimum, all BMP UAW Plans for failure to meet the UAW performance standard must include all of the following actions:

- a. within one year of filing the UAW Plan, complete a water audit and leak detection survey of the entire system and submit completed audit and survey to the Department;
within one year of completing the audit and leak detection survey, conduct sufficient repairs to reduce by 75% (by water volume) all leaks detected in the survey; and
within one year of completing such repairs, conduct additional repairs of leaks detected in the survey as may be necessary to reduce Bridgewater's UAW to 10% or less;
- b. implementation of a program that ensures the inspection and evaluation of all water meters and, as appropriate, the repair, replacement and calibration of water meters in accordance with the following schedule:
 - Large Meters (2" or greater) - within one year of filing the BMP UAW Plan
 - Medium Meters (1" or greater and less than 2") - within two years of filing the BMP UAW Plan
 - Small Meters (less than 1") – within three years of filing the BMP UAW Plan
- c. implementation of monthly or quarterly billing within three years filing the BMP UAW Plan and
- d. within one year of filing the UAW Plan, implementation of a water pricing structure that achieves sufficient revenues to pay the full cost of operating the system including, without limitation, the costs of repairs under paragraph a., the costs of meter repairs, replacements and calibrations under paragraph b., the costs of employees and equipment, and ongoing maintenance and capital costs.

Appendix C – Outdoor Water Use Restrictions

I. Nonessential Outdoor Water Use

“Nonessential outdoor water use” includes uses that are not required:

- a. for health or safety reasons;
- b. by regulation;
- c. for the production of food and fiber;
- d. for the maintenance of livestock; or
- e. to meet the core functions of a business.

Examples of nonessential outdoor water uses include:

- irrigation of lawns,
 - except by means of a hand-held hose outside the hours of 9AM and 5PM;
- washing of vehicles other than by means of a commercial car wash,
 - except as necessary for operator safety; and
- washing of exterior building surfaces, parking lots, driveways or sidewalks,
 - except as necessary to apply paint, preservatives, stucco, pavement or cement.

Examples of acceptable outdoor water uses outside the hours of 9 AM and 5 PM include:

- irrigation to establish a new lawn during the months of May and September;
- irrigation for the production of food and fiber or the maintenance of livestock;
- irrigation by plant nurseries as necessary to maintain stock;
- irrigation by golf courses as necessary to maintain tees and greens only; and
- irrigation of public parks and recreational fields.

II. Accessing Mean Daily Streamflows for the Taunton River Gauge Via the USGS Website

The USGS Steamflow website default shows Massachusetts streamflows in real time, i.e., the most recent periodic, usually quarterly hourly, reading made at each USGS stream gauge. This real-time data can vary widely over the course of a day and is not used to trigger the Water Management Permit Summer Limits on Withdrawals.

To trigger the Summer Limits on Withdrawals, the Department relies on the mean daily streamflows. The mean daily cannot be calculated until after midnight each day when USGS computes the hourly data into a mean daily streamflow.

Go to <http://waterdata.usgs.gov/ma/nwis/current/?type=flow> (note: the web address may change) for daily mean streamflow data at the Taunton River Gauge.